Association of the King and Queen's College of Physicians in Ireland.

INTRODUCTORY ADDRESS.

(WINTER SESSION, 1860-61.)

BY

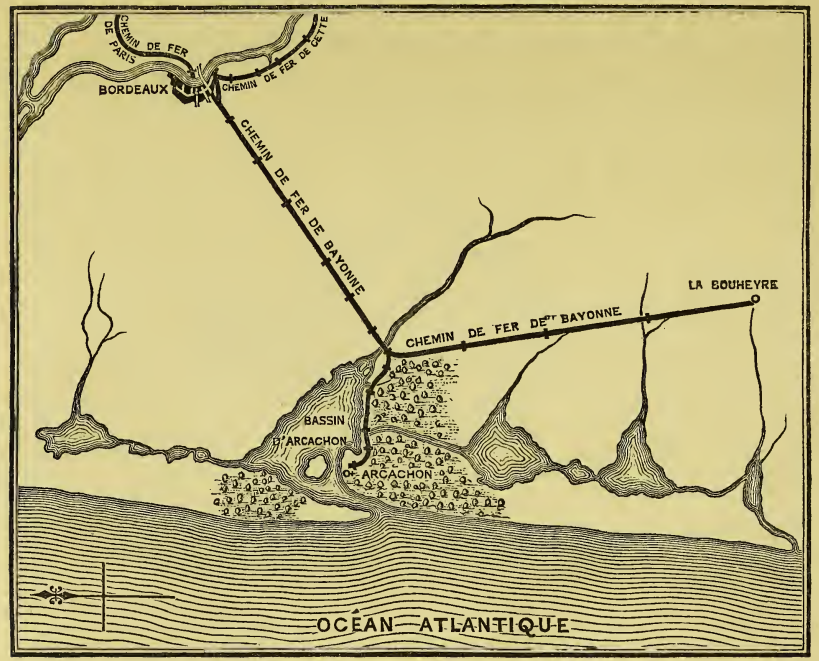
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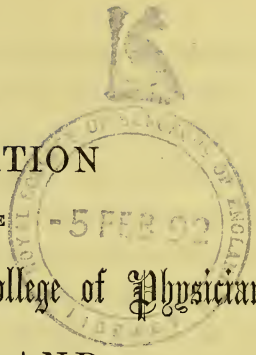
PHYSICIAN IN ORDINARY TO THE QUEEN IN IRELAND, PRESIDENT OF THE ASSOCIATINO, PRESIDENT OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS IN IRELAND, PRESIDENT OF THE ROYAL ZOOLOGICAL SOCIETY OF IRELAND, ETC.

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ASSOCIATION

OF THE

King and Queen's College of Physicians

IN IRELAND.

Climate—its two Great Divisions—Tonic and Sedative—Fallacies as to Temperature and to Humidity—Extent of Locality—Guides in Selection of a Place—Mountain Ranges, their Effects—Injurious Effect of Air not Supplied with Vapour—the "Mistral"—South-west Coast of France—"Arcachon" Pine Forests—Turpentine Gathering—Polariscope—Origin of the Pine Forests—their Progress and Effects.

GENTLEMEN,—My first and most pleasing duty is to thank the members of this Association for the honor they have conferred on me in selecting me a second time for the chair I now fill. It is not necessary for me to take up any portion of your time in recapitulating the history or the objects of this Association.

When the Council of this Association did me the honor to invite me to preside here this evening, and to inaugurate it with a short address, I need not say that I accepted the invitation with pride ; but I asked for a favor which was kindly granted to me—that instead of wearying you with introductory remarks,

they would permit me to consider myself still one of the rank and file of the Association, one of the working men, and allow me to contribute some little to which you might perhaps kindly grant a place among your practical contributions. The subject on which I would make a few observations is climate. Among the aids on which we depend for the restoration of health, or for its preservation, however theories and medicines may vary from time to time, there is one that we always and most properly hold in high esteem—*change of climate.* The subject is one claiming more attention every day, as increased facilities of travelling by steam vessel and railway have now placed within the reach of thousands, who could not before have attained it, this important hygienic agent. I can touch upon only a small department of the subject this evening. To us, in these countries, the most important, and the most frequent changes of climate sought after, are those for pulmonary diseases ; and as these may be divided into two great classes, viz—those of relaxation and debility, and those of irritation and increased vascular action, so may the climates to be sought, be divided likewise into two great groups, one comprising the climates exercising a tonic and bracing effect, the second those of a sedative or soothing character. Of the former we have many, and corresponding little difficulties in our selection, but the second group is much more limited ; and guided, as we must nesessarily be, by reports on

particular localities and their climates, and often by interested parties, we are sometimes chagrined and disappointed at results. The two great points to which attention is generally given, as regards the atmospheric relations of a locality, are its mean temperature, and the quantity of rain that falls ; and we sometimes find the comparative merits of two places summarily disposed of by stating that such a place is preferable to such another, because its mean temperature is ten degrees higher. There is no more fallacious guide than mean temperature. Two places may possess the same mean temperature, and yet their climates and the effects on the bronchial membrane may be very different. Thus, of two places, we may have in one a range of temperature within two periods from 30 degrees or two below freezing point, to 100 degrees or two degrees above blood heat, and the mean temperature is 65 degrees. Another place may only vary in temperature from 60 to 70 degrees, a difference scarcely perceptible to the senses, and the mean is the same, viz., 65 degrees ; and it needs no reasoning to show that the true temperatures of these two places, and their effects on the pulmonary organs, must be widely different--the one most injurious, the other beneficial. Another point of great importance is the duration of time within which the alternations of temperature occur. If alternations occur, though of trifling amount, within very short periods, they are injurious ; if they take place slowly, they are borne with compa-

rative impunity. This is seen not only in man, but in the lowest of the animal tribes, and even in the vegetable kingdom. The lowest classes of animals, fishes, and polypes, will suffer and even be killed by being changed suddenly to water a few degrees lower than that in which they had previously been. Every one who has kept an aquarium is aware of this fact; and in changing the water on the bulbous root of the hyacinth, to avoid injury to its fibres, caution is necessary to insure the same temperature; while great changes will be borne with impunity by the same class of animals, and in vegetable life, when these changes are spread gradually over a considerable lapse of time. In addition to the mean temperature, then, we require to know the lowest temperature of a place, the highest, and the duration of time occupied in the change from the one to the other.

A similar fallacy often occurs in reports as to humidity as occurs to temperature. Two places are compared with regard to the mean fall of rain in them, and one of them is declared as preferable to the other, and drier, on the ground—that the mean fall of rain is less, although, in reality, the locality in which the greater fall of rain takes place may be the drier and the healthier of the two. More rain will fall in a thunder-shower in half-an-hour in a warm, clear region of the south than may fall in a drizzling, mist-like rain of two days' duration in a foggy, sunless region; and while the latter exerts a continuously

injurious action on the skin and mucous membrane, the short but dense pour of rain of the former removes all harshness from the air, and is quickly succeeded by sunshine and warmth, bringing with them joyousness and health.

We may, I think, adopt some data that we may pretty safely take as guides in estimating the alleged respective merits of various localities. An important point to be attended to, is the extent of the locality. No locality that is small in extent, no matter how favorable it may seem, is desirable; for if a turn round a hill, or a different aspect at a short distance, give a considerable change of temperature, the locality is unsuitable, both on this account and because the resident is there confined to too small a space, and body and mind suffer. Another consideration is the relation of the locality to mountain ranges. It is often put forward as an advantage that such a place is sheltered from northern winds, by a mountain range. If the mountain range be at a moderate distance, and of no great height, its shelter is desirable; but if it be of great height, and approach near the locality, it is invariably mischievous, by frequently changing a soothing and sedative atmosphere into a dry and biting air, and altogether and suddenly altering the character of the air, for which the place is prized. In such a locality, the air cooled by a lofty and perhaps snowy mountain ridge, not only comes down upon the place at its foot, cold, but, having deposited its

hygrometric moisture in the previous process of cooling, then growing warm in its descent, and having its capacity for moisture correspondingly increased, robs all animal as well as vegetable tissues it meets of their natural moisture, acts in like manner on the mucous membrane and skin, and is the more injurious in proportion as its action is sudden. I need not recall to mind the names of some of the most boasted places in the south of Europe, open to this defect, resulting in injury so severe, that the spring, when these changes occur, often undoes in a short time all the good that a long period of mildness had previously effected.

If the cold and dry air of a northern latitude sweep over some hundreds, or as it may happen, some thousands of miles in reaching a locality that has a mild temperature of its own, the same results take place, for any rise of temperature that occurs in the long sweeps from north to south is of no value unless the air be supplied with moisture as its capacity for it increases. In the spring months, in some warm residences resorted to by invalids, this is severely felt, and just when returning warmth and long days invite the invalid to venture out, the increasing temperature rendering the air of the place light, it ascends, and a dry and irritating atmosphere rushes in to supply its place. Nearly all the localities on the south and south-east parts of France are more or less liable to this serious drawback, and it is to this cause the evil effects of the "mistral" are owing. It is only

necessary to cast a glance over the map of Europe to understand why the "mistral," the cold piercing wind of the north, is so much dreaded in these places, and is so injurious, for it reaches them not only comparatively cold from the higher latitudes, but also dry and piercing, as it has not passed over any great surface of sea to give it due moisture. The sudden incursion of a cold dry wind may also cause a sudden and temporary liberation of chilly, foggy, free moisture from the air of the locality, just as the sudden rush of cold air into a Russian ball-room converts the breath of the inmates into mist and snow ; nor will any but a large extent of sea surface suffice to give the air its required moisture, and hence it is that the whole western coast of Italy, at other seasons so delicious in climate, becomes unpleasant, harsh, and injurious in spring, from its back bone of high mountain sending down cold, dry air in spring to take the place of the moist and more genial atmosphere. If we had in our country a temperature only somewhat higher than it is, it would on its western coasts present the perfection of the climate we desire, such as is obtained in Madeira, a locality so circumstanced that the winds that generally reach it are not only warmed but supplied with the due porportion of moisture in perfect solution.

The south-western coast of France is free from the "mistral," for winds reaching the Bay of Biscay from the north-west blow over a vast expanse of sea surface, and are thus softened by the quantity of moisture the air takes up as it warms.

It is desirable that we should have our choice of localities as extended as possible, and with this view I will conclude with a few observations on a place that I think we may add to our list. The place to which I refer is "Arcachon," comparatively but little known as yet, but which I had an opportunity of seeing this year. Independently of its claim as a residence for some pulmonary affections, in the spring months, it has some claims for attention to the scientific observer in another point of view, to which I shall also advert. If you look at a map of France you will see to the south-west of Bordeaux, and at a distance of about thirty-five English miles, about two hours by railway, the "basin of Arcachon." It is a large inland bay, about twenty miles by ten wide, communicating with the Atlantic in the Bay of Biscay by a narrow channel nearly three miles long, tortuous, and about a mile across. This passage is long and narrow, and so completely is the whole basin surrounded by "dunes," or low ranges of sandhills that no storm that rages over the Atlantic ever raises waves in the bay; and while the sandhills are just high enough to act as shelter, they are not sufficiently elevated or abrupt to give rise to squalls, or to generate cold winds. In addition to the sandhills or dunes, the north-east, and east and south are belted by an almost interminable forest of pines of great size and height. It will be seen from this short notice that Arcachon has the

advantage of being sheltered by hilly ranges and forests from violent winds, as these must pass over it at a considerable elevation, while the air that reaches it from north and west loses its harshness in passing over a large extent of sea surface. Arcachon thus presents these advantages :—It is free from the vicinity of any high mountain ranges that might pour down upon it cold, dry, and harsh air, while it is sheltered by sandhills of moderate elevation, and it presents with this the additional advantage of sea air, without the violence of sea gales. There is another peculiarity to which much of the salubrity of the air of Arcachon, as a residence, is attributed—for it has a high local repute in pulmonary affections—and that is the great belt of pine forest whieh extends for many miles around it. The whole air is perceptibly impregnated with the balsamic odour of turpentine, and we know that the balsams and turpentines in vapour are remedial agents of much power in bronchial affections. This impregnation arises not merely from the presence of pine forests on a great scale, but from the gathering of turpentine or resin from the live trees, and this trade and its products now constitute the main wealth of the district. The process is carried on without injury to the tree, thus contrasting with the ignorant and destructive mode of gathering the resin in Turkey and Greece, where the tree is destroyed by a deep and transverse cut for the sake of a small quantity of product. A short description of the

mode of gathering the resin may not be uninteresting. In the pine forest of Arcachon, early in spring, the gangs of "resiniers," or resin gatherers, enter the forest, each provided with a light ladder formed of a single pole, with short cross sticks for the feet, and an adze, or scraper. They select trees of not less than a " metre," or French yard, in circumference, and scrape away the outer bark in a stripe of several feet high, and about six inches wide, taking care not to wound the vascular tissue of the tree. This appears to be done to encourage by exposure to the sun a greater activity in the vascular function of the part. In April the inner bark is sliced off the same portion, beginning at the lowest part of the trunk, and increasing the slicing, week by week, during the early summer months, in height, until a height of twelve or twenty feet is reached, according to the strength or age of the tree. From the exposed portion of the trunk a rapid oozing of turpentine immediately commences, and continues the whole summer in such quantities that wooden vessels are placed at the foot of every tree to receive it, while a considerable portion, solidifying as it descends, dries out of a beautiful pure white or cream color, and crusts the tree to a thickness of one or two inches, resembling a coating of manna or stalactites. The tree is not injured by the process. All the turpentine being scraped off, the opposite side of the tree is treated in like manner the succeeding summer. The tree is thus, in a suc-

cession of years, barked round, but the first wound is by that time completely healed, and the bark restored and fit again for the process, in the same place where it originally began. It will be easily understood that air passing through this vast forest must be at all times more or less deeply impregnated with turpentine, and it is not, probably, without reason that much efficacy is attributed to it. These forests afford delightful excursions. They possess all the wildness of great American forests ; no tracks or roads are visible, and you dare not venture through them without a guide. Under you are undulating hills of fine white sand, while high above rise the lofty pines, with great straight thick trunks, showing only outspread branches at their tops, so that all around the view is extensive. Here and there you come upon an oasis, or circular elevation, half an acre or so in extent, growing a number of grand pines, with underwood of heath, arbutus, blackberry, and wild rose, while around spreads a wide circle of white sand, the whole resembling a wooded and verdant island, rising from a circle of white sea. The pine, which is the tree of this amazing pine forest, is the " pinus maritima," and I am able to lay before you the cone of the tree, and the turpentine as it dries on the trunk, called " galipot or barras," to distinguish it from the more fluid portion, which is collected in wooden vessels at the foot of the tree. Professor Haughton has acquainted me with a curious

quality possessed by the oil obtained from the turpentine of those forests, known in trade under the name of Bordeaux turpentine. This turpentine, although of much greater value in manufacture and the arts than American turpentine, cannot be distinguished from it in appearance, smell, or taste ; and the artist or manufacturer was completely at the mercy of the trader as to adulteration, only discovering the difference when he was deceived by the result ; until science stepped in to his aid and revealed to him this curious fact, that when placed in the polariscope, Bordeaux turpentine twists the ray of light to the left, while American turpentine diverts the ray to the right. Professor Haughton has kindly promised to show you the experiment this evening.

The planting and growth of those immense pine forests, the wealth they have corferred upon the country, the products in turpentine and timber, and the conversion by means of them of uninhabitable wastes into culture and populated districts, and their wonderful power in arresting the destructive effects of moving sandhills, constitute altogether so singular and instructive an episode in the history of the application of science, for the benefit of our race, and its power, when combined with nature in combating even sands and sea, that the mode in which these effects have been achieved is well worth notice. From the earliest period to which the history of the topography of the "Landes" reaches, the moving deserts of sand of this

part of France were as much dreaded as the sands of an African desert. Their progress was so irresistible, and their movements so capricious, that agriculture or residence was equally impracticable. A single incident will give an idea of the progress of these sands. In the year 1700 the sands began to move towards an eminence on which the church of " Notre Dame d'Arcachon" was built, and in the year 1721, the church had totally disappeared beneath the moving sandhills, or " dunes de sables." There seemed little or no prospect of arresting their destructive progress, for winter after winter they stretched more and more inwards over the country, when in 1774, the Abbe Desbiey, who was secretary to the Academy of Bordeaux, presented a memoir upon the fixing of the " dunes" by sowing pines. His memoir was entitled " *Researches on the origin of the sands of our shores, on their destructive inroads on the land, and on the means of fixing them, and arresting their progress.*" This memoir obtained the prize of the Academy, and in 1786 Bremontier, an engineer, was directed to commence operations. The trial succeeded completely, the sandhills have been fixed, their progress has been arrested, and immense forests now embellish a tract that had been an arid desert, and form a barrier for the protection of agriculture and civilization. The people have marked their gratitude by the erection of a marble column in the centre of the forest to the memory of Bremontier, recording

that in 1786 he fixed the first of the "dunes," and covered it with a forest, and it is expressly provided in their laws that this monument shall for ever be preserved within a circular space, with large alleys through the forest leading to it. We have at present, within eight miles of Dublin, on the Malahide coast, such "dunes," as unproductive, though not as shifting, as those of Arcachon, and there seems no valid reason why they too might not be covered by pine forests. I believe Lord Palmerston has made extensive plantations of "pinus maritima" on his estates on the west coast of Ireland, and with perfect success, and the French government are now planting almost the whole line of coast of the Bay of Biscay with this pine. I have rambled over thousands of acres, a few years ago shifting sands, now covered with young forests. As the seeds are sown they are protected from being blown away by laying on the surface pine branches and staking them down. Once the young plants have taken root they need no further care. Arcachon, although possessed of the advantage of a mild climate, of an inland sea of nearly 200 square miles of surface free from storms and waves, and sheltered by magnificent pine forests free from marsh or morass, and within a moderate distance of the second city of France, remained "*a terra incognita*" until 1826, when a Captain Legallais, of the merchant service, who had made frequent voyages to India, built at Arcachon a hotel and bath. Adopting the

style to which he had been accustomed in India, he built his first establishment of wood after the model of a " bungalow"—a one-storied house with a verandah running round it, into which all the rooms open. The model has been universally adopted, and the watering place of Arcachon now consists of hundreds of such isolated houses, with magnolias, oleanders, and orange-trees around them, giving the whole place the picturesque appearance of clusters of Indian bungalows in an American pine clearing. In 1844 the opening of a railway gave a fresh impetus to its progress, and Arcachon is now apparently and deservedly one of the most favorite spring residences on the south-west coast of France, for invalids laboring under some forms of pulmonary affections. I have obtained some short notes of the temperature from Dr. Hameau, the resident physician, and he assures me that during the last winter—which had been unusually severe—the thermometer (Fahrenheit) only fell four times in December, and three times in February to freezing point, and this was on the beach. In January and February, it appears from his tables that the temperature in the forest is usually about 44 to 50 of Fahrenheit. A pine forest is not objectionable as other forests would be for a residence, for the bare stems, only furnished with branches at their tops, permit a free transmission of light and circulation of air, while they break a gale of wind ; and the permeable sand underneath allows rain to run through it as fast as it

falls. I have only now to pray you to excuse me for the time I have occupied, and to thank you for the attention you have given me.

On the conclusion of the President's address, Professor Haughton showed some interesting experiments with the Polariscope illustrative of its applicability as a test of the several kinds of turpentines.

THE END.